Joint Close Air Support Joint Test and Evaluation (JCAS JT&E)

Testing With Training: A Success Story

Col "Maggie" Brown

Joint Test & Evaluation Purpose

- Answer CINC/Service nominated problems/issues
- Provides quantitative information used for analyses of joint military capabilities
- Assess Service systems interoperability in joint operations
- Evaluate and recommend improvements to joint technical and operational concepts

JCAS JT&E Charter

- Conduct a JT&E to investigate, evaluate, and improve the operational effectiveness of joint U.S. Close Air Support
  - Determine the baseline effectiveness of joint Close Air Support
  - Identify changes to TTP, equipment, and training to increase effectiveness

Close Air Support

"Air action by fixed- and rotary-wing aircraft against hostile targets which are in close proximity to friendly forces and which require detailed integration of each air mission with the fire and movement of those forces." Joint Pub 1-02

Close does not imply a specific distance. The determining factor is the requirement for detailed integration because of proximity, fires, and/or movement. *Joint Pub3-09.3*

JCAS JT&E Directors

Director	**Col Dave Brown, USAF** *F-4, F-117, F-106*
Army Deputy	**LTC Bryan Campbell** *AH-64, AH-1, OH-58, Armor*
USAF Deputy	**Lt Col Scot Chiasson** *F-111,O-2, A/OA-10, ALO*
USMC Deputy	**Maj James Quinn** *F/A-18D*

JCAS JT&E Methodology

- Focused mini-tests
- Field testing
  - Deploy to Field Training Exercises
- Surveys of current operators
  - Web based
- Professional gatherings
  - JCAS SME Seminars
  - JCAS Symposiums

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JCAS JT&E Testing

- Variation from other JT&Es
  - Testing with Training
  - Multiple Data Collection Opportunities
  - Observe Decision Makers
- Formalized agreements
  - National Training Center (NTC)/Nellis
  - 29 Palms

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JCAS JT&E Methodology Venue Instrumentation

- Fully instrumented ranges at NTC/Nellis
  - In-place systems
    - TSPI, Digitize tactical communications
- No instrumentation at 29 Palms
  - JCAS portable systems
    - GPS TSPI, Digitize tactical communications
- Supplemented with Palm Pilot, VoiceIt, & GPS

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JCAS JT&E Data Collection

Tactical Operations Center (TOC)

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JCAS JT&E Data Collection

TACTICAL AIR CONTROL PARTY (TACP)

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JCAS JT&E Data Collection

AVIATION

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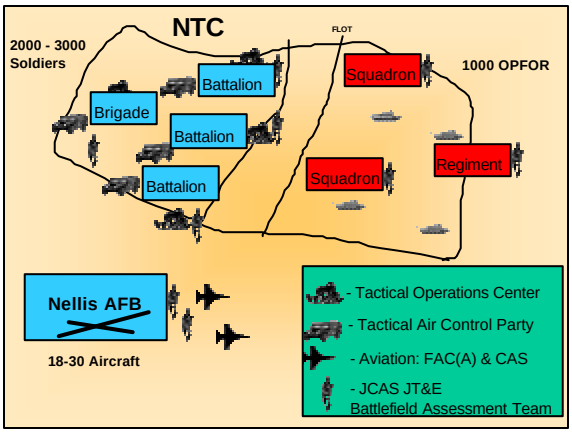

JCAS JT&E Data Collection

Post Battle Assessment

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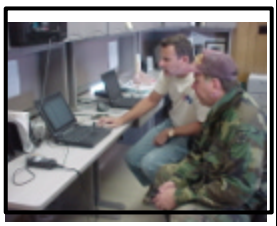
JCAS JT&E Data Download

Field

Garrison



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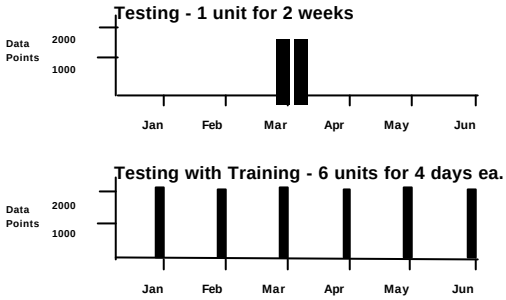
JCAS JT&E Methodology



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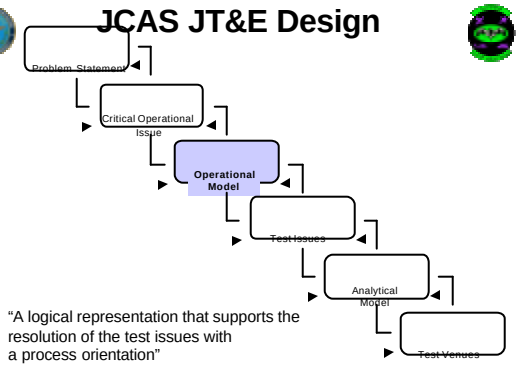
JCAS JT&E Design



"A logical representation that supports the resolution of the test issues with a process orientation"

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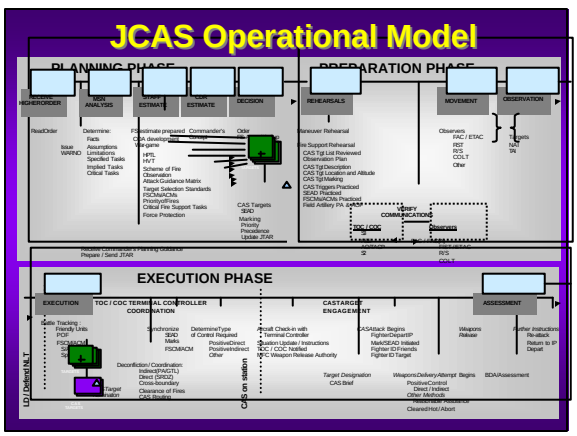
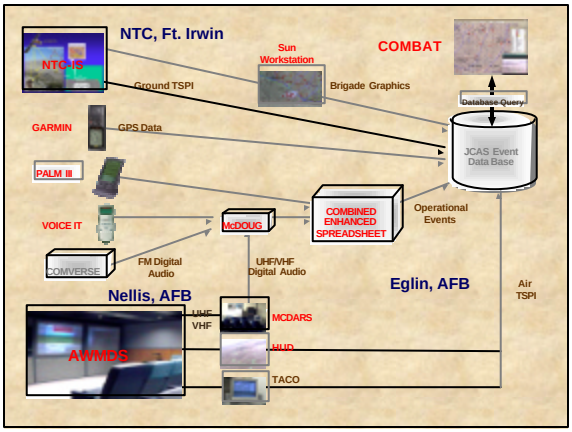
JCAS Operational Model





Field Testing Non-Instrumented Range

- 29 Palms
- Use same data collection package
  - Same test measures
- Instrumentation package required
  - Communications
  - Air/Ground TSPI

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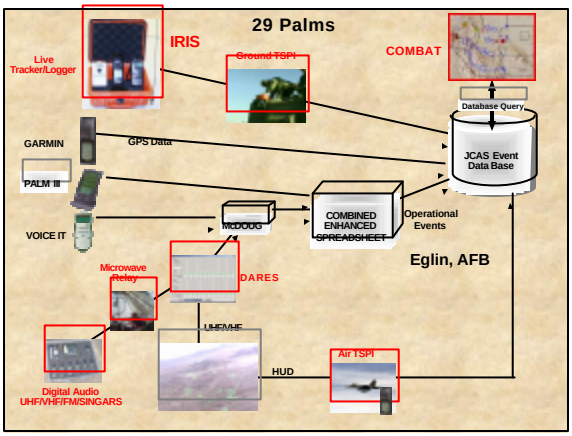

IRIS – Combines APRS, Data Logger, and COMBAT

Transmitted Data Packets

Digipeater

Radio Receiver

Audio Output

Sound card

Computer w/ COMBAT Software

Decodes, displays, and logs position information in real time.

Vehicle-mounted box

NMEA : *National Marine Electronics Association standard for GPS output*

APRS: *Automated Packet/Position Reporting System*

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Testing with Training Positives

- Operational Realism
  - Scenario
  - Players
- Multiple Testing Opportunities
- Cost Savings
- Instrumentation Legacy

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Testing with Training Limitations

- Non-Interference Issues
- Uncontrolled Variables
- Complex Reduction
- Trainers suspect Testers

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Testing with Training Conditions for Success

- Professional Working Relationships
- Must do your homework
- Effective MOAs
- Testing ... Noninterference with Training
- Identify Test Measures early-on

- *Execute data collection with an operational mindset … a must!*

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OSD Joint Close Air Support (JCAS)

202 Cherokee Ave.
Eglin AFB, FL 32542
DSN: 872-4089
https://jcas.eglin.af.mil

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Field Testing Real Time Tracking

- 29 Palms
- 3 vehicles tracked, 12 sec sample rate, 1200 baud data transmission, 2 digipeaters, data loggers used auto algorithm
- Coverage: approximately 3000 sq km (29 Palms Range)
- Future: move to 9600 baud packet radio
  - 12 sec sample rate => 12-15 vehicles
  - 25-30 sec sample rate => 25-30 vehicles
- To track more vehicles, lower sample rate and/or add more frequencies
- Data loggers capable of 1sec sample rate.
- By combining a GPS data logger and APRS, we are capable of reasonable situational awareness and accurate position logging.

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On-going Actions

- Digital Control Mini Test
- USMC Data Analysis
- AFRL Project
- Joint Pub 3-09.3 Revision
- CAS CRD
- Fires MTT
- JROC ESC
- Begin closeout March 02

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JCAS JT&E Future Operations

- JT&E Final Report Sept 02
- Lights Out Dec 02
- JROC ESC Initiative
  - SOF and Navy Baselines
  - Conditions (Weather, Foliage, etc.)
  - Digital / Standoff
  - Targeting

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JCAS JT&E Background

- Testing Began 98
- Mini-test November 98
- Day CAS Field Test March 99
- Convened (3) GOSCs
- Symposiums
- JROC ESC

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Interim Observations

- 11 Maneuver brigades / 26 battalions
- 22 Battles
  - Observed first two of each rotation
- Over 39,000 data elements
  - 218 CAS Sorties
  - 438 Weapon delivery attempts
- A joint training environment

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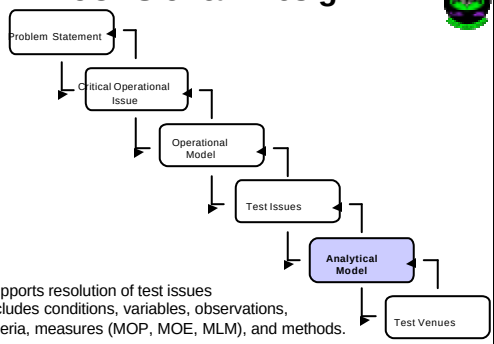
JCAS JT&E Design



-Supports resolution of test issues
-Includes conditions, variables, observations, Criteria, measures (MOP, MOE, MLM), and methods.

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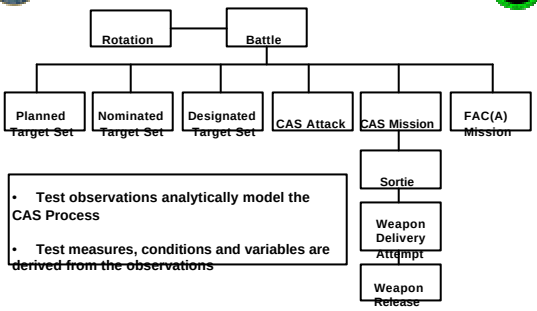
JCAS Analytical Model



- Test observations analytically model the CAS Process
- Test measures, conditions and variables are derived from the observations

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JCAS JT&E Legacy Products

- Baseline of joint CAS effectiveness (day & night)
- Instrumentation Enhancements
- NTC/29 Palms battle replay CD
- Recommended changes to joint CAS training, doctrine, and equipment
- Combined testing with training on a non-interference basis

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JCAS JT&E Guidance

- **General Officer Steering Committee (GOSC)**
  - Members
    - National Training Center (NTC)
    - Air Warfare Center (AWFC)
    - Marine Corps Air Ground Combat Center (MCAGCC)
    - Naval Strike and Air Warfare Center (NSAWC)
    - Joint Staff, J8 representation
- **Subject Matter Expert Seminar**
  - Maneuver, Fire Support, Terminal Control, and Aviation

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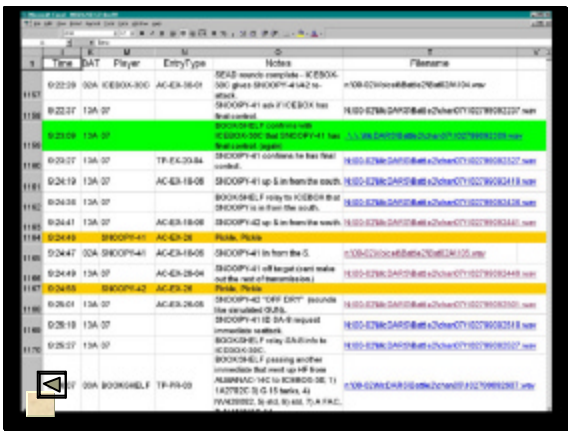
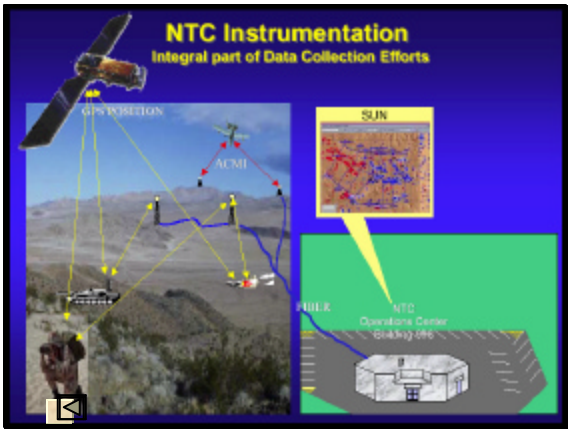
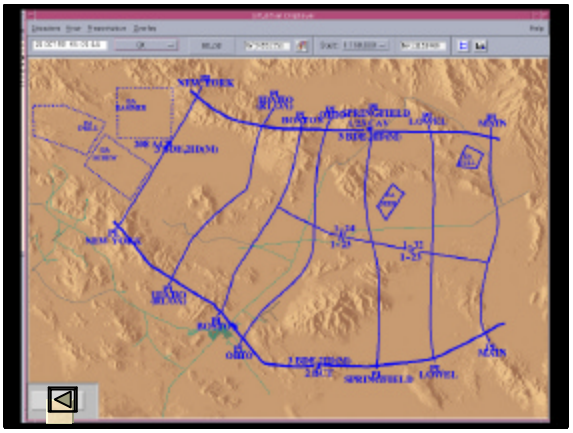


Garmin 12XL GPS

NTC Instrumentation

Integral part of Data Collection Efforts

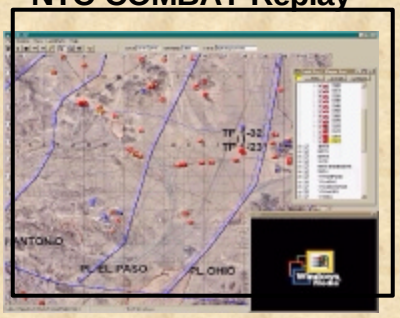




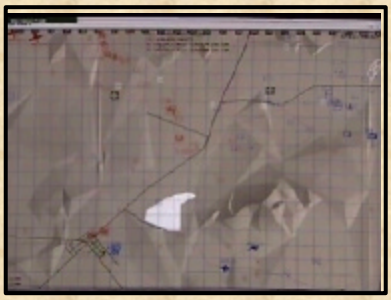
Voice It Recorder

Garmin 12XL GPS

NTC COMBAT Replay



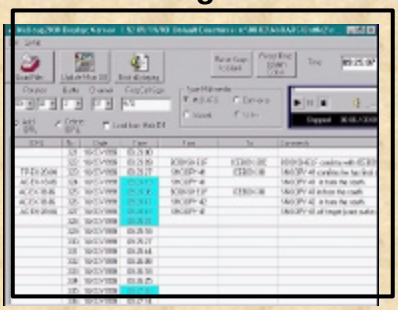
AWMDS Replay



Palm Data Download

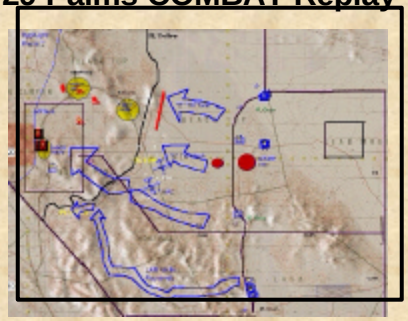
Palm IDRL Capture

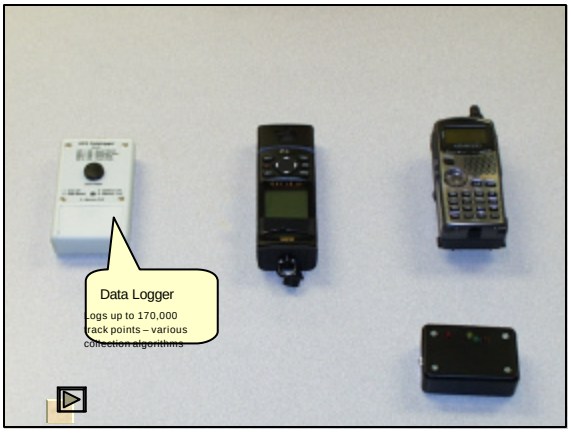
McDoug 2000

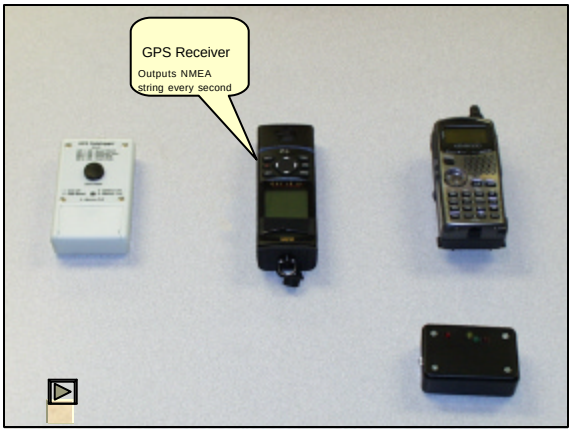


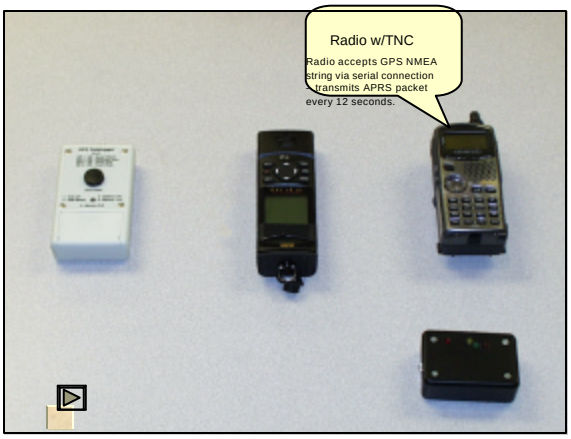
HUD Data

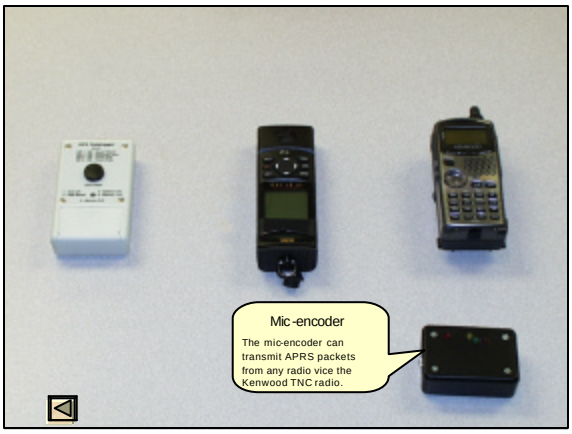
29 Palms COMBAT Replay




Data Logger
Logs up to 170,000 track points – various collection algorithms


GPS Receiver
Outputs NMEA string every second


Radio w/TNC
Radio accepts GPS NMEA string via serial connection transmits APRS packet every 12 seconds.


Mic-encoder
The mic-encoder can transmit APRS packets from any radio vice the Kenwood TNC radio.